

1/18

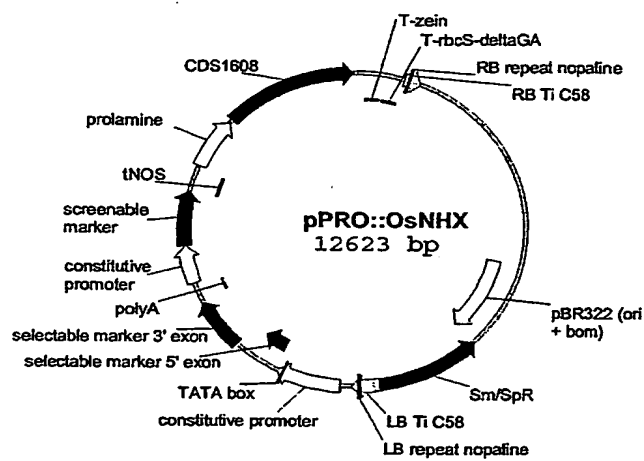


FIGURE 1

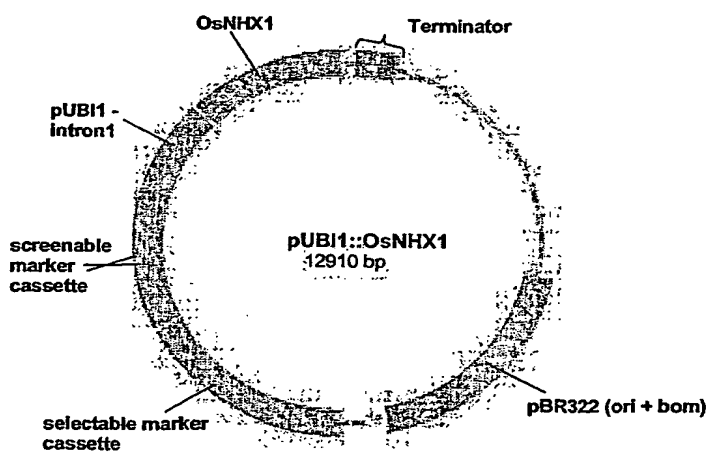


FIGURE 2

2/18

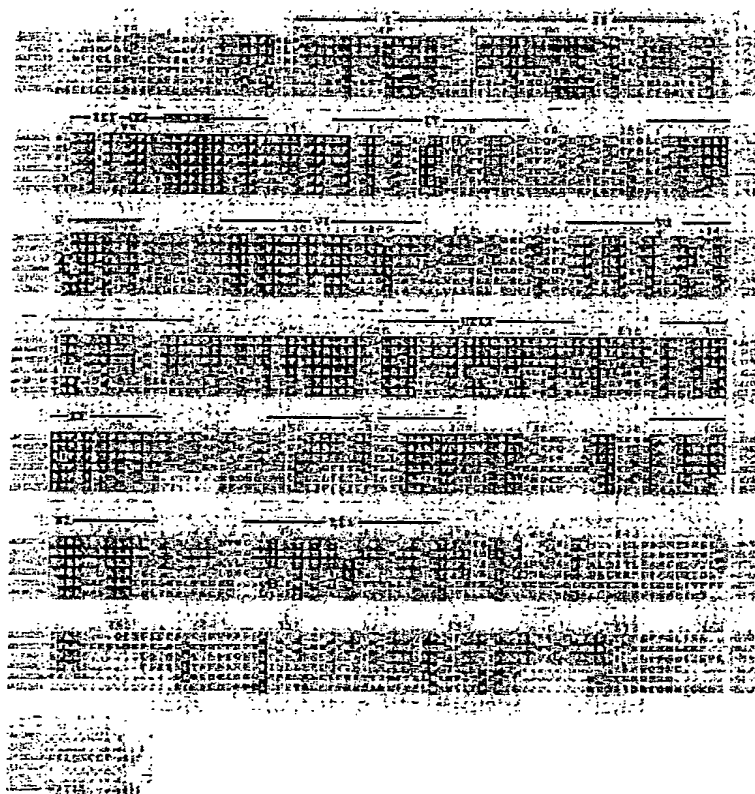


FIGURE 3

3/18

SEQ ID NO 1: coding sequence for *Oryza sativa* NHX1 protein

GAGAAGAGAGTTTGTAGCGAGCTCGCGCGAATGCGAAGCCAACCGAGAGAGGTCTCGA
TACCAAAATCCCGATTTCTCAACCTGAATCCCCCCCCACGTTCCCTCGTTTCAATCTGTT
CGTCTGCGAATCGAATCTTTGTTTTTTTTTCTCTAATTTTACCGGGAATTGTCGAATT
AGGCATTACCAACGAGCAAGAGGGGAGTGGATTGGTTGGTTAAAGCTCCGCATCTTGC
GGCGGAAATCTCGCTCTCTCTGCGGTGGGTGGCCGGAGAAGTCGCCGCCGGTGAGG
CATGGGGATGGAGGTGGCGCGCGCGCTGGGGGCTCTGTACACGACCTCCGACTACG
CGTGGTGGTGTCCATCAACCTGTTCTGTCGCGCTGCTCTGCGCCTGCATCGTCTCGGC
CACTCTCGAGGAGAATCGCTGGGTCAATGAGTCCATCACCGGCTCATCATCGGCT
CTGCACCGCGTGGTGTCTTGTCTGATGACCAAGGGAGAGCTCGCACTTATTCGTCT
TCAGTGAGGATCTCTTCTCATCTACCTCTCTCCCTCCGATCATCTTCAATGCAGGTTT
CAGGTAAAGAAAAGCAATTCTTCCGGAATTTTCATGACGATCACATTATTTGGAGCCGT
CGGGACAATGATATCTTTTTCACAATATCTATGCTGCCATTGCAATATTTCAGCAGAA
TGAACATTGGAAACGCTGGATGTAGGAGATTTCTTGCAATTGGAGCCATCTTTCTGCG
ACAGATTCTGTCTGCACATTGCAGGTCTCAATCAGGATGAGACACCTTTTTGTACAG
TCTGGTATTCTGTAAGGTGTGTGAACGATGCTACATCAATTTGTGCTTTTCAACGCAC
TACAGAACTTTGATCTTGTCCACATAGATGCGGCTGTGTTCTGAAATTTCTGGGGAAC
TTCTTTTATTTATTTTGTGAGCACCTTCTTGGAGTATTTGCTGGATTGCTCAGTGC
ATACATAATCAAGAAGCTATACATTGGAAGGCATTCTACTGACCGTGAGGTTGCCCTTA
TGATGCTCATGGCTTACCTTTTCATATATGCTGGCTGAGTTGCTAGATTGAGCGGCATT
CTCACCGTATTCTTCTGTGGTATTTGTAATGTACATTACACTGGCATAACGTACAGA
GAGTTCAAGAGTTACAACAAAGCACGATTGCAACTCTGTCTTCATTGCTGAGACTT
TTCTCTTCTGTATGTTGGGATGGATGCATTGGATATTGAAAAATGGGAGTTTGCCAGT
GACAGACCTGGCAAAATCCATTGGGATAAGCTCAATTTTGCTAGGATGGTTCTGATTGG
AAGAGCTGCTTTTGTATTCCCGCTGTGTTCTTGTGCAACCTAACAAAGAAGGCACCGA
ATGAAAAATTAACCTGGAGACAGCAAGTTGTAATATGGTGGGCTGGGCTGATGAGAGGA
GCTGTGTCGATTGCTCTTGTCTTACAATAAGTTTACAAGATCTGGCCATACTCAGCTGCA
CGGCAATGCAATAATGATCACCAGCACCATCACTGTGTTCTTTTGTAGCACTATGGTAT
TTGGGATGATGACAAAGCCATTGATCAGGCTGCTGCTACCGGCTCAGGCCATCTGTG
ACCTCTGAGCCTTTCATCACCAGGCTCCCTGCATTCTCTCTCTGACAAGCATGCAAGG
TTCTGACCTCGAGAGTACAACCAACATTGTGAGGCCTTCCAGCCTCCGGATGCTCCTCA
CCAAGCCGACCCCACTGTCCACTACTACTGGCGCAAGTTGACGACGCGCTGATGCGA
CCGATGTTTGGCGGGCGCGGTTCTGTCCTTCTCCCTGGATCACCAACCGAGCAGAG
CCATGGAGGAAGATGAACAGTGCAAGAAATGAGAATGGAATGGTTGATGAGGAGAATA
CATGTAAATGTGACAGCAAAAGAGAGAAGGCAAGTTTGGGTTTGTAGAGTTTGGCTG
CTGCTAATGAGTTGTTGATAGTGCCATATTTCTCAGAACTTCAGATGGTGCCTCACCA
AGGCCTAAGAGCCAGGAGGACCTTCTGATAATGGTTGGGATGATGGTTTGTCTGTC
AGGATGAACCTAGTGAGTGACACAGGGTGTGCTCCGACAACCTGTAAATTTGTGTA
GATTAACAGCCCCATTTGTACCTGTCTACCATCTTTAGTTGGCGGGTGTCTTCTCTAG
TTGCCACCTGTCATGTAAATGAAATTTCTCCGCCAAATAGATTGTGTGTATAATAAT
TTTGCTTGGTTG

FIGURE 4

4/18

SEQ ID NO 2: *Oryza sativa* NHX1 protein

MGMEVAAARLGALYTTSDYASVVSINL FVALLCACIVLGHLLEENRWVNESITALIIGL
 CTGVVILLMTKGKSSHLFVSEDLFFIYLLPPIIFNAGFQVKKQFFRNFMITITLFGAV
 GTMISFFTTISIAAIAIFSRMNIGTLDVGDFLAIGAI FSATDSVCTLQVLNQDETPFLYS
 LVFGEGVVNDATSI VLFNALQNFDLVHIDA AVVLKFLGNFFYLFLSSTFLGVFAGLLSA
 YIIKKLYIGRHSTDREVALMMLMAYLSYMLAEELDL SGILTVFFCGIVMSHYTTWHNVTE
 SSRVTTKHAFATLSFIAETFLFLYVGMDALDIEKWEFASDRPGKSIGISSILLGLVLIG
 RAAFVFPPLSFLSNLTKKAPNEKITWRQVVIWWAGLMRGAVSIALAYNKFTRSGHTQLH
 GNAIMITSTITVVLFS TMVFGMMTKPLIRLLL PASGHPVTSEPSPKSLHSPLLTSMQG
 SDLESTTNIVRPSSLRMLLT KPTHTVHYXWRKFD DALMRPFMFGGRGFVPFSPGSPTEQS
 HGR

SEQ ID NO 3: *Arabidopsis thaliana* Nhxl

ATGTTGGATTCTCTAGTGTGCGAACTGCCITTCGTTATCGACATCTGATCAGCTTCTGT
 GGTTCGCTGAATCTCTTGTGCACTTCTTGTGCTTGTATTGTTCTTGGTCATCTTT
 TGGAAGAGAATAGATGGATGAACGAATCCATCACCGCCTTGTGATTGGGCTAGGCACT
 GGTGTTACCATTTTGTGATTAGTAAAGGAAAAAGCTCGCATCTTCTCGTCTTTAGTGA
 AGATCTTTTCTTCATATATCTTTTGCCACCCATTATATTCAATGCAGGGTTTCAAGTAA
 AAAAGAAGCAGTTTTTCCGCAATTTCTGACTATTATGCTTTTTGGTGCCTGTTGGGACT
 ATTATTTCTTGCAACAATCATATCTCTAGGTGTAAACACAGTTCTTTAAGAAGTTGGACAT
 TGGAACCTTTGACTTGGGTGATTATCTTGCTATTGGTGCCATATTTGCTGCAACAGATT
 CAGTATGTACACTGCAGGTTCTGAATCAAGACGAGACACCTTTGCTTTACAGTCTTGTA
 TTCGGAGAGGGTGTGTGAATGATGCAACGTCAAGTTGTGGTCTTCAACGCGATTTCAGAG
 CTTTGATCTCACTCACCTAAACCACGAAGCTGCTTTTCATCTTCTTGGAACCTTCTTGT
 ATTGTTTCTCCTAAGTACCTTGTCTTGGTGTGCAACCGGTCTGATAAGTGCCTATGTT
 ATCAAGAAGCTATACTTTGGAAGGCACTCAACTGACCGAGAGGTTGCCCTTATGATGCT
 TATGGCGIATCTTTCTTATATGCTTGCTGAGCTTTTCGACTTGAGCGGTATCCTCACTG
 TGTTTTTCTGTGGTATTGTGATGTCCCATTAACATGGCACAATGTAAACGGAGAGCTCA
 AGAATAACAACAAAGCATACTTTGCAACTTTGTCTTTCTTGGGAGACATTTATTTT
 CTTGATGTTTGAATGGATGCCTTGGACATTGACAAGTGGAGATCCGTGAGTGACACAC
 CGGGAACATCGATCGCAGTGAGCTCAATCCTAATGGGTCTGGTCTATGTTTGAAGAGCA
 GCGTTCGCTCTTCCGTTATCGTTTCTATCTAATCTAGCCAAGAAGAAATCAAAGCGAGAA
 AATCAACTTTAATGATGAGGTTGTGATTGGTGGTCTGGTCTCATGAGAGGTTGCTGTAT
 CTATGGCTCTTGCAACAACAAGTTTACAAGGGCCGGGCACACAGATGTACCGGGGAAT
 GCAATCATGATCACGAGTACGATAACTGTCTGCTTTTTCAGCAGAGTGGTGTGTTGGTAT
 GCTGACCAAAACCACTCATAAGCTACCTATTACCGCACCAAGACCCACCAAGAGCATGT
 TATCTGATGACAACACCCCAAAATCCATACATATCCCTTTGTTGGACCAAGACTCGTTC
 ATTGAGCCTTCAGGGAAACCAATGTGCCTCGGCCTGACAGTATACGTGGCTTCTTGAC
 ACGGCCCCTCGAACCCTGCATTACTACTGGAGACAATTTGATGACTCCTTCATGCGAC
 CCGTCTTTGGAGGTCGTGGCTTTGTACCTTTGTTCCAGGTTCTCCACTGAGAGAAAC
 CCTCTGATCTTAGTAAGGCT

FIGURE 4 (continued)

5/18

SEQ ID NO 4: *Arabidopsis thaliana* Nhxl protein

MLDLSVSKLPSLSTSDHASVVALNLFVALLCACIVLGHLLLENRWMNESITALLIGLGT
 GVTILLISKGKSSHLVFSDELFFIYLLPPIIFNAGFQVKKQFFRNFTIMLFGAVGT
 IISCTIISLGVTFQFKKLDIGTFDLGDLAIGAIFAATDSVCTLQVLNQDETPLYSLV
 PEGEVVNDATSVVVFNAIQSFDLTHLNHEAAPHLLGNFLYLLSTLLGAATGLISAYV
 IKKLYFGRHSTDREVALMMLMAYLSYMLAELFDLSGILTVPFCGIVMSHYTWHNVTESS
 RITTKHTFATLSFLAETFIPLYVGMDALDIDKWRVSVDTPGTSIAVSSILMGLVMVGRA
 AFVFLSFLSNLAKKNQSEKINFNMQVVIWWSGLMRGAVSMALAYNKFTRAGHTDVRGN
 AIMITSTITVCLFSTVVFGLTKPLISYLLPHQNATTSMLSDDNTPKSIHIFLLDQDSF
 IEPNGHNHVPRPDSIRGFLTRPRTRVHYYWRQFDDSFMRPVFGGRGFVFPVPGSPTERN
 PPDLSKA

SEQ ID NO 5: *Medicago sativa* Na⁺/H⁺ antiporter

ACGCGGGGAATCCAACCCATTGTATAACAACAACCTACCGGAGATATATAATATCTCTCT
 CCTCTAAATAGAATATCGACAGAGTGAAGCAAGATTATTAGGAGTGATAATCTTCC
 ACGGCAGCTCAAAAACAACAACATCCGATTTCATCATCACGCGTGTCTCGAGAGATACT
 TGTGTTGATGAGATCAGAAGGTTCTTAAAAATGGACAGCTCAGAAACATAAATATCTGGG
 ATTCATTATTACTACTGGACTTTGAAATTTGGAATTCAGCAATAATCTCAATTTGTTT
 TTAATCTGCTTTTGAATTTGTGGAGGGTGGACGACATCATGGCTATTGAAATGCTTT
 CTATTGTTTCAAACTATCAATGTTATCCACTTCGATCATGCTTCTGTTGTTTCTATG
 AACTGTTTGTGGCACTTCTGTGTCTTGTATTGTCCTTGGTCATCTTCTCGAGGAGAA
 TCGATGGATGAATGAATCCATCACTGCCCTTTTGATTGGTATTGCACTGGTGTAGTGA
 TTTTGTCTGTTTAGTGGTGGAAAAAGTTCGCATATCTTGTTTTCAAGTGAAGATCTTTT
 TTTATATACCTTCTGCCGCTATTATATTCAATGCCGGGTTTCAAGTAAAGAAAAAGCA
 GTTTTGTCAACTTCATGACTATCACATCATTGGAGCTATTGGCACATTAATATCTT
 GTGTCAATATAACCAAGGCTGCTACTTTTGTCTTTAAGAGGATGGATATTGGGCCACTG
 GAAATCGGCGATTATCTAGCTATTGGAGCAATATTGCGCAACAGACTCTGTTTGCAC
 ATTGCAGGTGCTAAATCAGGATGAGACACCTTTATTGTATAGTCTTGTATTGGGGAAG
 GTGTTGTGAATGATGCTACCTCAGTGGTCTTTTCAATGCAATCAAAAGCTTTGATCTT
 AACCAACTGAACCTTCAATTGCAATTGCAATTTCTGGGCACTTCCTGTATTTGTTGT
 AGCAAGCACACTCCTTGGCGTTGTGACAGGTCTGCTCAGTGCCTATGTTATTAAGAGC
 TGTACATTGGCAGGCACTCCACAGATCGTGAGGTGCTCTTATGATGCTAATGGCATA
 CTCTCCTATATGCTGGCTGAGTTAACCTATCTGAGTGGCATTCTTACCGTATTCTTTT
 TGGTATTGTTATGCTCTATATACTTGGCATAATGTGACGAGAGTTCAAGAATCACTA
 CCAAGCATTCTTTGCTACCTTGTCTTGTGCTGAGATCTTATCTTCTTATGTT
 GGTATGGATGCCCTGGACATTGAAAAATGGAAGTTTGTAGTGATAGTCTTGGAAACATC
 TATAGCTGCAAGTTCAAGTATTGTTGGGTCTAATACTTCTTGAAGAGCAGCGTTGTTT
 TTCCCTTATCTTCTTATCCAATCTGACTAAAAATCACAACATCAGAAGATTTCTTTC
 AGACAGCAAGTTATCATTGGTGGGCTGGTCTTATGAGAGGTCTGTTTCAATGGCACT
 TGGGTATAATCAGTTCAACATGTGGGGCATACTCAACTACGTAGCAATGCAATCATGA
 TAACCAGCACCATCACTGTTGTCTTTTCAGCACAGTGGTGTGTTGTTGCTGACTAAG
 CCACTCATAAGGCTTCTACTACCTCATCTAAATCACAAGCAGCATGACAACCACAGA
 ATCGACTACTCCAAATCATTATGTCCTTCTAGGAGATTCCCGAGATTCTGAAG
 CTGATCTTGAAGCCATGAAATTCACCGACCGAACGCTTCTGCTTTACTATCAACT

FIGURE 4 (continued)

6/18

CCAACTCACACTGTTTCATCGATTATGGCGAAAAGTTTGATGATTCAATTCATGCGTCCTGT
 TTTTGGTGGCAGAGGTTTGTTCCTGTAGAACCTGGCTCACCAGTGAACGCAATGGTA
 ATCAATGGGGTTGAGAAAAGAAGCCATGAAATGTGTAATATGTGTGTGTACTACGTAT
 GATTGTGAAAAGTCATGCAACGTGTGTATAATGATTTTATGTCATAAGAACCTAGTAG
 TGAATTTTCTTTAAAAAAAACCTCGTAGTGAAATTTTGTGAGCTGTTTGAGTAGC
 TAGTATGAGATGGCTTGCCATCTCTGTCTATTATGTAACTACAATATTTTGTAGAT
 TCTCTGAGCCATTACATGTTTGTGTATGTGTCCAAAAA

SEQ ID NO 6: *Medicago sativa* Na⁺/H⁺ antiporter protein

MAIEMSSIVSKLSMLSTSDHASVVMNLFVALLCACIVLGHLLLENRMWNESITALLIG
 ICTGVVILLFSGGKSSHILVFSEDLFFIYLLPPIIFNAGFQVKKQFVNFMTITSPGA
 IGTILSCVIITTGATFAFKRMDIGPLEIGDYLAIGAIFAATDSVCTLQVLNQDETPLLY
 SLVFGEGVNDATSVVLFNAIQSFDLNQLNPSIALHFLGNFLYL FVASTLLGVVTGLLS
 AYVIKKLYIGRHSTDREVALMMLMAYLSYMLAELTYLSGILTVFFCGIVMSHYTWHNVT
 QSSRIITTKHSFATLSFVAEIFIFLYVGMDALDIEKWKFSVSDSPGTSIAASSVLLGLILL
 GRAAFVFPFLSFLSNLTKKSQHQKISFRQQVLIWAGLMRGAVSMALAYNQFTMSGHTQL
 RSNAMITSTITVVLFSFVFGLLTKPLIRLLPEPKITSSMTTTESTTPKSFIVPLLG
 DSRDSEADLEGHEIHRPNSLRALLSTPTHTVHRLWRKFDDSFMRPVFGGRGFVPVEPGS
 PSERNGNQWG

SEQ ID NO 7: *Suaeda maritima* subsp. *salsa* Na⁺/H⁺ antiporter

TTTCACAAAGATTATTGGACTTCAGAAAGTTTGATTTTGTGGAGCTAGAAAGGGTTTCAC
 ATACATTGGACATTAATTTACTTGAATATATATATATTTGTGTTGGGTCTTGGATTCCG
 GTGCACAAAGAAATAGGTGAACAATGTTGTCACAGTTGAGCTCTTTTGTGCAAGTAAG
 ATGGACATGGTTTCGACGCTCGATCATGCTTCCGTTGTTTCGATGAATTTGTTTGTGGC
 ACTGTTACGTGGCTGCATTGTAATTGGTCATCTTCTCGAAGAGAATCGCTGGATGAATG
 AATCCATTACAGCTTTGCTAATAGGTTTATCTACTGGGATTATAATCCTGCTAATTAGT
 GGAGGAAAGAGTTCGCATTTGTTGGTCTTCAGTGAAGATCTTTCTTTATATACCTCCT
 TCCACCGATTATATTCAATGCGGGGTTTCAGGTGAAAAGAAGCAATTTTCCGCAACT
 TCATTACTATTATTTTGTGTTGGAGCCGTTGGTACATTGGTATCATTCAATCATATCT
 CTGTTCAATAGCTATATTTCAAAGATGGATATTGGTTCGCTGGAGTTAGGGGATCT
 TCTTGCAATTGTTGCAATATTGCTGCAACTGATTGATTGTCACATTGCAAGTGCTTA
 ATCAAGATGAGACTCCACTCTTTATAGTCTCGTGTGTTGGTGAAGGTGTCGTCAATGAT
 GCTACATCAGTGGTGTGTTCAATGCAATTCAAACCTTGACCTCACGCACATTGACCA
 CAGAATTCCTTCCAATTTGGTGGCAACTTTCTATATTTATTTTGTGCAAGCACTCTGC
 TTGGAGCAGTGACTGGCTTGCTAAGCGCTTATGTCATCAAAAAGTTGTACTTTGGAAGG
 CATTCAACTGACCGTGAGGTAGCCTTAATGATGCTTATGGCTTATCTATCGTACATGCT
 TGCTGAACTCTCTATCTGAGCGGAATCTTACAGTATCTTCTGTGGGATTGTCATGT
 CCCATTATACATGGCACAATGTGACGGAGAGCTCCAGAGTAACCAAGCATGCTTTT
 GCAACACTCTCTTTGTAGCTGAGATCTTCATCTTTCTATATGTTGGTATGGATGCACT
 GGATATTGAGAAGTGAGATTTGTGAGCGATAGTCTTGAACATCTGTGCTGTGAGTT
 CCATACGTCTGGTCTTCACATGGTTGGGCGAGCTGCTTTGTTTTTCCCTTCGCCTTT

FIGURE 4 (continued)

7/18

TTAATGAACCTTGTCACAGAAATCAAAATAGTGAGAAGGTACCTTCAATCAGCAGATAGT
 CATTGGGTGGGCTGGTCTCATGAAAAGTGCTGTCTCCGTGGCAGCTTGCTTATAATCAGT
 TTTCAGGTGAGGACACACACAGCTGAGGGGAAATGCAATCATGATTACAAGCACCATTA
 ACCGTTGTCCTTTTCAGTACGATGGTATTTGGGTTGCTGACAAAGCCTCTTACTCTT
 TATGTTGCCCTCAACCGAAACATTTCACTAGTGCAAGCACCGTGTGAGATTGGGGAGTC
 CAAAGTCATTCTCCTTGCCCTCTTCTTGAAGATAGACAAGATTCTGAAGCTGATTTGGGC
 AACGATGATGAAGAAGCCTACCCCGTGGGACTATAGCTCGACCTACTAGTCTTCGTAT
 GCTACTAAATGCACCAACTCACACTGTCCATCATTATGGCGCAGATTTCGATGATTATT
 TCATGCGGCCTGTATTTGGTGGCCGGGGTTTGTACCTTTTGTCCAGGTTCACCCACC
 GAACAGAGCATCACTAATTTTGTACAGAGAACATAAGTTAGCGATAATTGAGGCAGTT
 GGTGCAGAACTAATAACTTACAGCCCTACAGGCAATCTACAAAGACAAAAATGCCCT
 TACCCAAGAACGAACAGCCCGGTGTTGGTCTCGTGGGCTTGATGTTAAGACTGTGCTG
 TACTTCTGTTAATAGAGAGTAAGTTACAGAAACCACCGATTAAACATATCTGTAATTT
 TTACAGCATGGATATTCGATGCATTCTTAACTCGGCTGTAGCTAGAATACTCTAGCA
 TGTTTGTAGTTTCAGTCTTACCATTAGGTTTCTCTACATAACCTCAATAAGCTGT
 TTAGTGTGCTTACTGCTTACTTTAGAGCAAACTGCAACTGTGAAAATTGCTTACGTCAG
 CGGCACCTGTGTAATTATCATTTTATAATGATGGAGCATGATCATTTGCAATCAAAT
 TTACAATACTGTGATTAAAAA

SEQ ID NO 8: *Suaeda maritima* subsp. *salsa* Na⁺/H⁺ antiporter protein

MLSQLSFFASKMDMVSTSDHASVVSMMNLFVALLRGCVIGHLLLENRMNSESITALLI
 GLSTGIIILLISGGKSSHLVFSDELFFIYLLPPIIFNAGFQVKKQFFRNFIITILFG
 AVGTLVSFIIISLGSIAIFQKMDIGSLELGDLLAIGAIFAATDSVCTLQVLNQDETPLL
 YSLVFGGCVNDATSVVLFNAIQNFDLTHIDHRIAPQFGGNFLYLFFASTLLGAVTGLL
 SAYVIKCLYFGRHSTDREVALMMLMAYLSYMLAELFYLSGILTVFFCGIVMSHYTWHNV
 TESSRVTTKHAFATLSFVAEIPFIPLYVGMDALDIEKWRVSDSPGTSVAVSSILLGLHM
 VGRAAPVFFPFAFLMNLSSKSNSEKVTFFNQIVIWAGLMKSAVSVALAYNQFSRSGHTQ
 LRGNALIMITSTITVVLFSMTVMFGLLTKPLILFMLPQPKHFTSASTVSDLGSEKSFSLPL
 LEDRQDSEADLGNDEEAYPRGTIARPTSLRMLLNAPHTHTVBHYWRRFDDYFMRPVFGG
 RGFVPFVPGSPTEQSITNFVTENIS

SEQ ID NO 9: *Zea mays* Na⁺/H⁺ antiporter NHX1

ATGGGGCTTGGAGTAGTGGCGGAGCTAGTCCGCCTTGGCGTCTCTTCTCCACCTCAGA
 TCACGCCTCCGTGGTTAGCATCAATCTCTTGTGCGCTTGCTCTGCGCCTGTATCGTCC
 TGGGCCATCTTCTTGAAGAGAAATAGGTGGGTGAACGAGTCCACCGCGCTGATTGTGGG
 CTCGGCACCGGTACCGTCACTCATGATTAGCCGGGGGGTGGTTATTCACGTCCTAGT
 CTTCTCCGAGGACCTCTTCTTCTTCTATCTTTGCGCGCGATCATTTTCAATGCAGGGT
 TCCAAGTGAAGAAGAAACAGTTCTTTCGAAACTTCATTACTATTACACTGTTTGGTGCA
 GTTGGCACCTTGATCTCTTTTACTGTAATATCCCTTGGCGCTCTAGGACTAATATCAAG
 GCTTAATATCGGCGCACTTGAACCTGGGAGACTATCTTGCACTTGGGGCAATATTCTCGG
 CCACAGACTCGGTTGCACCTTGCGAGGTGTTAAGCCAAGATGAGACACCATTCTTGATC

FIGURE 4 (continued)

8/18

AGTCTTGTATTGGTGAAGCGGTGGTCAACGATGCCACTTCGGTAGTGGTGTCAATGC
 ACTCCAAAACCTTTGATATAACTCACAFCGATGCGGAGGTTGTCTTCCATCTATTAGGAA
 ACTTCTTCTACCTCTTCTTCTATCAACTGTGTGGGAGTGGCCACAGGACTTATCTCA
 GCGTTAGTGATTAAAAGCTATACCTTGGACGGCACCTCTACAGAGGGAGGTGGCTCT
 TATGATGCTTATGGCGTATCTCTCTACATGTTGGCGGAACCTTCGCGCTGAGCGGGA
 TCTTGACGGTATTCTTGGGTGCATTGTTATGAGCCACTATACATGGCACAACGTGACA
 GAGTCCAGCAGAATCAGCACTAAGCATGCGTTTGGCACGCTCAGCTTCTAGCCGAAAC
 CTTCTCTTCTGTACGTGGGTATGGATGCTCTCGACATTGACAAGTGGAGGTCCGTGA
 GTGACACCCAGGTAAGTCTCTGGCCATAAGCTCGATTTTGATGGGACTCGTGATGGTT
 GCGCGGGCTGCCTTCGTATTCCTCTCTCTCTCTCTCAATTTAGCGAAAAAACGGA
 GCACGAAAAAATCAGCTGGAAGCAGCAGGTGGTCAATTTGGTGGGCGGGTCTCATGCGAG
 GCGCGGTTTCTGATGGCCCTAGCGTACAAGAAGTTTACCCGCGCAGGCGATACTCAGGTC
 CGCGGGAACCGGATCATGATTACAGCACGATTATCGTCGTGTGTGTTTCGACAATGGT
 GTTCGGCCTGCTCACGAAGCCCTTAATTAACCTTGCTAATACCGCACCGTAACGCCACAT
 CGATGTTGAGCGATGACTCAAGCCCAAGTCTTGCATAGCCCTCTGCTAACCTCTCAA
 CTGCTAGCGACTTAGAGGAGCCGACCAACATCCGCGGCGAGCTCCATAAGAGGCGA
 GTTCCTCACCATGACTAGGACCGTGACCGATACTGGCGCAAGTTCGACGACGCTTCA
 TGAGGCCCATGTTTCGGAGGCGCGGTTTCGTACCTTTCGTGCCAGGCAGCCGACCGAG
 CGTAATCGCCCGGATCTTTCCAAGGCTTAA

SEQ ID NO 10: *Zea mays* Na⁺/H⁺ antiporter NHX1 protein

MGLGVVAELVRLGLVLSSTSDHASVVSINLFVALLCACIVLGHLLLENRWVNESTALIVG
 LGTGTVILMISRGVVIHVLVFSDELFFFYLLPPIIFNAGFQVKKQFFRNFTITLFGA
 VGTLSIFTVISLGLGLISRLNIGALELGDYLAALGAIFSATDSVCTLQVLSQDETPFLY
 SLVFGGEGVNDATSVVVFNALQNFDTTHIDAEVVFHLLGNFFYLFLLSTVLGVATGLIS
 ALVIKLYFGRHSTDREVALMMLMAYLSYMLAELFALSGILTVFFGCIUMSHYTWHNVT
 ESSRITTKHAFATLSFLAETFLFLYVGM DALDIDKWRVSVDTPGKSLAISSILMGLVMV
 GRAAFVFPPLSFLSNLAKKTEHEKISWKQVVIWWAGLMRGAVSMALAYKFTFRAGHTQV
 RGNAMITSTIIIVVLFSTMVFGLLTKPLINLLI PHRNATSMLSDDSSPKSLHSPLLTSQ
 LGSDL EPTNIPRPSSIRGEFLTMTRTVHRYWRKFDDAFMRPMPFGRGFVPFVPGSPTE
 RNPPDL SKA

SEQ ID NO 11: *Zea mays* Na⁺/H⁺ antiporter NHX2

ATGGGCCTTGGTGTGATGCGGAGACGGTCAGGCTCGGAGTCCTTAGCTCGACCTCGGA
 TCATGCCAGCGTTGTCACTAACAACTTCTTCGTAGCACTCTTTGCGCCTGTATCGTCC
 TCGGGCATCTCTTGGAGGAGAACCGAATGGTTAATGAGTCTATTACAGCACTGCTGGTG
 GGGCTGGGCACTGGGACCGTGATTCTGATGATTAGTCGGGGCGTGAGTATTCAGTTCT
 CGTCTTTTCAGAGGACCTGTTCTTATCTATCTGTACCTCCGATTATCTTCAATGCCG
 GGTTC CAAGTAAAGAAAAAGCAATCTTCCGCACTTTATAACGATTATTTGTTTGGT
 GCTATTGGGACTCGATTTCCTTTGTAATAATCTCTCTTGGTGCTATGGGGTTGTTCAA
 GAAACTTGATGTTGGTCCACTCGAGCTTGGGGACTATCTGCAATTGGTGCTATTTCT
 CGGCAACAGATTCTGTTTGACCTTACAGGTGCTTAACCAGGATGAAACACCCCTACTC

FIGURE 4 (continued)

9/18

TACAGTCTCGTATTCCGCGAGGGCGTTGTTAATGATGCTACCTCAATCGTTGTGTTCAA
 CGCGCTCCAAAACTTCGACATCAACCACATCAATGCCGAGGTGGTATTTCACTCCTTG
 GCAACTTCTTGTAACCTCTTCTATTGAGCACCGTGCTCGGCGTGGCGACCGGTCTCATC
 TCCGCGCTGGTCATTAGAAGATCTACTTCGGACGCCACTCGACTGATCGGGAAGTGGC
 CTTAATGATGCTGATGGCATACTAAGCTACATGCTGGCAGAGCTTTTGGCCCTGTCCG
 GAATCCTCAGTGTGTTTTCGGCTGCATCGTCATGAGCCATTATACGTGGCACAACGTC
 ACGGAGTCTAGCCGAATTACTACGAAGCACGCCTTTGCCACCTGTCTTCTCGCTGA
 GACTTTCATATTTCTCTACGTTGGGATGGATGCGCTAGACATTGAGAAGTGGCGGTCCG
 TTTCCGACACCCCGGGCAAATCGATAGCCATATCCTCCATACTCATGGGGCTTGTCTATG
 CTTGGACGCGCGGCTTTCGTGTTCCCGCTAAGTTTCTTGTCAAATCTGGCGAAGAAGAA
 TGAGCACGAAAAGATCTCCTGGAAGCAGCAAGTTGTGATCTGGTGGAGCGGTTTGATGA
 GGGGTGCTGTCTCTATGGCCCTAGCTTATAACAAGTTTACCAGAGCCGGCCATACGGAG
 GTGAGAGGTAAAGAAATCATGATTACTAGCACCATTACCGTGTGCTATTCTCCACAGT
 GGTGTTCCGTCTCCTGACTAAACCACTGATCAGGCTCCTTATGCCCCACCGCCATCTGA
 CCATGCTCTCCGACGACAGCACCCCGAAGTCAATGCACTCACCTTTGCTGACATCCAG
 CTCGGAAGCTCCATCGAAGAGCCGACGACAGATAACACGCCCTACAAATATTCGTGGCGA
 ATTCACACTATGACGAGAACGGTGCATAGGTACTGGAGAAAATTGATGACAAATCA
 TCGCGCCCAATGTTTGGCGGCAGGGGCTTCGTACCTTCGTCCCTGGTTACCAACGGAG
 AGGAATCCCCACGATCTTTCGAAGCCCTAA

SEQ ID NO 12: *Zea mays* Na⁺/H⁺ antiporter NHX2 protein

MGLGVDAETVRLGVLSSSDHASVVSNNFFVALLCACIVLGHLLLENRMVNESITALLV
 GLGTGTVILMISRGVSIHVLVFSDDLFFIYLLPPIIFNAGFQVKKQFFRNFTIILFG
 AIGTLISFVILSLGAMGLFKKLDVGPLELGDYLAIGAIFSATDSVCTLQVLNQDETPLL
 YSLVFGEGVVNDATSIIVFNALQNFIDITHINAEVVFHLLGNFLYLFLLSTVLGVATGLI
 SALVIKKIYFGRHSTDREVALMMLMAYLSYMLAELFALSGILTVFFGCTVMSHYTWHNV
 TESSRIITTKHAFATLSFLAETFIIFYVGMDALDIEKWRVSVDTPGKSIAISSIILMGLVM
 LGRAAFVFPFLSFLSNLAKKNEHEKISWKQVVIWWSGLMRGAVSMALAYNKFTRAGHTE
 VRGNEIMITSTITVVLFSVVFGLLTKPLIRLLMPHRHLTMLSDDSTPKSLHSPLLTSQ
 LGSSIIEPTQIPRPTNIRGEFTTMTRTVHRYWRKFDKFMRPMPGGRGFVFPVPGSPTE
 RNPHDLSKP

SEQ ID NO 13: *Zea mays* Na⁺/H⁺ antiporter NHX3

ATGTCAATAGGACTGACGCCGAGACCGTGACTAACAAGCTAGCCAGCGCCGAGCACCC
 CCAAGTCGTCCCTAATTCTGTGTTCAATTGCGCTCCTCTGTCTGTGCTGGTGTAGGCC
 ACCTCCTTGAGGAGAACAGATGGGTCAATGAATCAATAACAGCCATTCTCGTGGGCGCT
 GCGACTGGGACCGTCATCTGCTCATCTCGAAAGGAAAATCGAGCCACATACTTGTGTT
 CGATGAGGAATTGTTTTTCATCTATCTACTGCCCAATATTTCATGCGCGGTTTC
 AAGTAAAGAAAAAGCAATTCTTCGCAACTTTATAACGATTATTTGTTTGGTGTATT
 GGGACTCTGATTTCCTTTGTAATAATCTCTCTTGGTGTCTATGGGGTTGTTCAAGAACT
 TGATGTTGGTCCACTCGAGCTTGGGGACTATCTTGCAATTGGTGTATTTCTCGGCAA
 CAGATTCTGTTGCACCTTACAGGTGCTTAACCAGGATGAAACACCCCTACTCTACAGT

FIGURE 4 (continued)

10/18

CTGGTATTTCGGTGAGGGGGTCGTGAACGACGCTACAAGTGTGTGCTGTTTAAATGCAGT
 GCAAAAGATCGACTTCGAACACCTTACCGGAGAGGTGGCGCTCCAGGTTTTCGGCAACT
 TCCTCTATCTGTTTCTCAACCTCAACGGTCCCTGGGCATAGCCACTGGGCTCATTACCGCC
 TTCGTCCTCAAGACACTCTACTTCGGCCGTCTAGTACTACCCGTGAGTTGGCCATTAT
 GGTCTGATGGCCTACTTGTCTTCATGCTTGCTGAGTTGTTTCACTCTCAGTGGTATCA
 TTACTGTTTTTTTCTGCGGCGTGCTCATGTCCCATGTTACCTGGCACAATGTTACTGAG
 TCGTCCAGAATTACCTCTCGCCATGTGTTCGCTATGCTAAGCTTCATTGCCGAAACGTT
 TTTGTTTCTGTACGTGGGGACGGACGCGCTTGACTTCACAAAGTGAAGACGTCCTTCGT
 TATCCTTTGGGAAGTCCCTAGGGGTATCCAGCGTGCTCCTGGGGTTGGTTCTAGTCGGT
 CGGGCGGCATTCGTTTTCCCTCTCGTTCCTGAGCAACCTTAGTAAGAAACACCTGG
 GGAAAAATCAGCATCAGGCAGCAGGTTGTAATTGTTGGGCGAGGACTTATGAGGGGCG
 CCGTCAGCATCGCTTTGGCGTTCAACAAATTACAAGGGCCGGTCACACTCAGGTAAGA
 GGAAACGCAATCATGATCACTAGCACCATCATCGTGGTGTCTTTCTCTACAGTCGTTTT
 CGGCCTCCTCACCAAACCGTTAATCAACCTTCTCATACCCCATCGCAATGCAACCTCCA
 TGTGTCTGACGACTCCAGCCCTAAGTCTCTACACAGCCCACTTTTAACCTCCCAACTG
 ATAAGCTCAATCGAGGAGCCACGCAAAATCCGCGGCCGACAAATATACGGGGTGAGTT
 CATGACCATGACGCGAACCGTGATCGCTATTGGCGCAAGTTTGATGACAAGTTTCATGA
 GGCTATGTTTCGGAGGCAGGGGTTTTGTCCCGTTTGTCCAGGGTGCCTACCGAAAGA
 AGCTCACCCGATCTATCCAAGGCATGA

SEQ ID NO 14: *Zea mays* Na⁺/H⁺ antiporter NHX3 protein

MSIGLTAETVTNKLASAEHPQVVPNSVFIALLCCLVIGHLLLENRWVNESITAILVGA
 ATGTVILLISKGSSHILVFDEELFFIYLLPPIIFNAGFQVKKQFFRNFTITILFGAI
 GTLISFVILSLGAMGLFKLDVGPLELGDYLAIGAIFSATDSVCTLQVLNQDETPLLVS
 LVFGEGVNDATSVVLFNAVQKIDFEHLTGEVALQVFGNLYLSTSTVLGIATGLITA
 FVLKTLVYGRHSTTRELAIMVLMAYLSFMLAELFSLSGIITVFFCGVLMSEHTWVHNVTE
 SSRITSRHVFAMLSFLAETFLFLYVGTDLDFTKWKTSSLSFGKSLGVSSVLLGLVLVG
 RAAVFVPLSFLSNLSKKHPGEKITTIRQQVVIWAGLMRGAVSIALAFNKFTRAGHTQVR
 QNAIMITSTIIVVLFSTVVFGLLTKPLINLLIPHRNATSMLSDDSSPKSLHSPLLTSOL
 ISSIEEPTQIPRPTNIRGEFMTMTRTVHRYWRKFDKFMRFMPFGRGFVPFVPGSPTER
 SSPDLKA

SEQ ID NO 15: *Zea mays* Na⁺/H⁺ antiporter NHX4

ATGGGGTATCAGGTCGTGCGCGCGCAGCTGAAGCTGGCTTCCTCAGCTGACCACGCAAG
 CGTGGTTATCATCAGCTCTTCGTGGCCCTCCTCTGCGCTTGATAGTGTGGGCCATC
 TTCTTGAAGAGAAATCGCTGGCTAAACGAATCAATTACAGCATTGATAATCGGGCTCGGA
 ACGGGGGTTGTGATTCTATTGATCAGCCGAGGTAAGAACAGCCGCTGCTGTGTCTC
 GGAGGACCTCTTCTCATCTATCTATTGCGGCCATTATTTCAATGCGGGGTTCCAGG
 TGAAGAAGAAACAGTTCTTCCGGAATTCATGACAATCACAATTCGGTGCTGTGGC
 ACAATGATATCCTTCTTCAATCTCTCTCGGCGCAATAGCGACATTGAGCAGAAATGAG
 CATTGGGACGCTAGATGTCGGGGATTTTCTCGCTATTGGAGCTATCTTTCTGCAACGG
 ATTCTGTGTGCAGCTGCAGGTCCTCCATCAGGATGAGACGCCCTTCTGTACAGTCTG

FIGURE 4 (continued)

[illegible]

MGYQVVAQKLASSADHASVVIITLFFVALLCACIVLGHLLLEENRWLNESITALIIGLG
TGVVILLIRSGKNSRLVFSFEDLFFIYLLPPIIFNAGFQVKKKQFFRFNFMITLFGAVG
TIMSFFITISLGAITFSRMSIGTLVDGDFLAIGAIFSATSVCVTLQVLHJGTETPFLYSL
VFEGGVNDATSVVLFNVAQKIQFTHINAWTALQIGNFLYLFSTSTLLGIDETLITAF
VLKQVLYPGRHSTFRELAIMTLMAYLSYMLAELFSLSGKLLTVFFCGVLMSHVTMHNVTES
SRTTSRHVFATLSFREFIFLYVGMADLDFSEKWSSTLSLSPGGTGLVSGVMGLVMLGR
AAFVFFPLSFLSNLAKKHQSEKLSFRMQVYIWWAGLMRGAVSMALANKFTKSGHTQLHG
NAIMITSTITVVLFSMTVMFGMITKPLIRLLLLPASGHPRELSEPPSPKSFHSPLLTSQQG
SDLESTTNIVRFPSSLRGLLTXTPTVHYWYWRKFDALMRPVFGGRGFPVPFVPGSPTERN
PDLLSKA

AACGGAACTTCTCCAGATACCCGCGCCGCGCGAAAAGAAATAGAGGAGAATCCCGACCT
 CCCCGCCGCGCGCGCTCGCATCTGCCCCCCCTCTTCTCCCTCTCTCGCTCCCCACCCC
 GGGTTTCCCGTGCCATCTTTTCTCTCCCAACCCCGCGCCCGGCAGACGAGCGGCG
 AGACGGGGCCAGGAGGAGGAGAGCTGGCTGTCTCTCGTCTCCCGTCGATTCTGTCTC
 CGGATTAGCGCCGCGCGCTGCTCCCGAGGGCTCCGCTCGCGGTTGATTCGATCTGATTG
 AAAAAGCCCGGCTCTTTCCCGGAGGGCGCGGCTCGCTCGCGCGAGGATCGATGTGTCTC
 GTTCGCGCGGGCTCAAGGAAGAAGATTAACGGGCGAGGATGGCGTTCGAAGTGGTGGCGG
 CGCAGTTGGCGCGCTGAGCGAGCGCTGGCCACCTCGGACACAGCTCCGTTGGTCTCC
 ATCAACTCTTTCGGCGCGCTGCTCTGCGCTGTCATGCTCTTCGGCCACTCTCGAGGA

FIGURE 4 (continued)

12/18

GAACCGCTGGCTCAACGAGTCCATCACCGCCCTCATCATCGGGCTGTGCACCGGCGTGG
 TGATCCTGATGACCACCAAGGGGAAGAGCTCGCACGTGCTCGTCTTCAGCGAGGACCTC
 TTCTTCATATACCTCCTCCCTCCCATCATCTTCAACGCGCGGTTTCCAGGTGAAGAAGAA
 GCAGTTCTTCGGAAATTTTCATGACAAATCACATTATTCGGCGCTGTCCGGACGATGATTT
 CATTCTTCACAATCTCTCTTGCTGCCATTGCCGATATTCAGCAAGATGAACATTGGGACA
 CTGGATGTATCAGATTTTCTCGCAATTGGAGCCATCTTTTCCGCGACAGATTCGTCTG
 CACTTTACAGGTTCTCAATCAGGACGAGACGCCCTTTCTGTACAGTCTAGTTTTCGGGG
 AAGGTGTTGTGAACGATGCCACATCAGTCGTGCTTTTCAACGCGCTCCAGAACTTCGAT
 CCTAACCAATCGATGCAATCGTCAATTCGAAGTTCTTGGGAAACTTCTGCTACTTATT
 CGTGTCAAGCACCTTCCTTGGAGTATTTTCTGGATTGCTCAGTGCTATACATAATCAAGA
 AGTTATACATAGGAAGGCATTCTACTGACCGTGAGGTTGGCGCTTATGATGCTCATGGCC
 TACCTCTCATATATGCTAGCTGAGCTGCTTGATTGAGTGGCATCCTCACCGTGTTCTT
 CTGTGGTATTGTGATGTCGATTATACTTGGCATAATGTGACAGAGAGCTCAAGAGTTA
 CAACAAAGCATGCTTTTGCAACCTTGTCTTTCATGTCTGAGACCTTTCTCTTCTTTAT
 GTTGGGATGGATGCACTGGATATCGAGAAGTGGAAATTTGCTAGTGACAGCCCTGGCAA
 ATCCATCGGAATAAGCTCAATTTTGTAGGATTAGTTCTGGTTGGAAGAGCTGCTTTTG
 TCTTCCCGCTTTTCTTCTTATCCAACTGACAAAGAAGACGGAGCTCGAAAAAATAAGC
 TGGAGGCGCAAAATCGTAATATGGTGGGCTGGGCTGATGAGAGGAGCTGTGTCGATCGC
 TCTTGCTTACAATAAGTTTACAAGATCTGGCCACACACAGCTACACGGCAACGCGATAA
 TGATCACCAGCACCATCACTGTCTGTTCTGTTTAGCACTATGCTGTTTGGCATATTGACA
 AAGCCTCTGATCCGGTTCCTGCTGCCCGCTCGAGCAATGGCGACCCCTCGGAGCCCTC
 GTCACCGAAGTCCCTGCACTCTCTCTCTCACAAGCATGCTAGGCTCGGACATGGAGG
 CGCCTCTCCCATCGTCAAGCCCTCCAGCTCCGGATGCTCATCACCAAGCGACCCAC
 ACCATCCACTACTACTGGCGCAAGTTGACGACGCGCTGATGCGTCTATGTTCCGGCGG
 GCGCGGTTTGTGCGCTACTTCCCTGGATCACCCACCGATCCAAACGTAATCGTGGCAT
 GAACGTTGTGAGAGAAGAGAAAAGCCATTACAGCTTCAGGAGACACTCTGAAGTGTG
 TAACTGGAAGAGAGGAGGTGCTACAGCTTCGGAAGAAGGCGAAGTCTCCATTACTATT
 ATAGTGTTTGGCTGACTCGGAGGGCCGAAGAAGGCGCCCTCTGACGATGTTTCAAGT
 AACGTTGTTGGTCCGCCACCAACAGGAAGATGAACCCCTAGTAACGGTGATGCGAGTACCA
 TCGCCTTATCGGTTACGACAAGCCTGTACATTTTGTATGTAGATTAAACAAGCCAAATTG
 TACCCTATGAGATGAGATCTCTCTGGCAGGCAGGCAGGCCATTTCCTTGCTCCTTGGC
 TAGGAGTCTCTGGCCTCTGCATATCTACCAGTGCTTATTAATCTCTCCCCACTTTC
 TAGTGGATTGGTGTAAATGGTGTGTACTTTACCAAGTTGTGTGAGATGAGTGATGATCTT
 GTGGCCTGGTTGCTACAAAGAACTCATCTCAAAGTTATCTATCTATTTTCTATATTGAA
 TTGAACGAACTTGTGCTTGAACCAC

SEQ ID NO 18: *Hordeum vulgare* HvNHX1 protein

MAFEVVAQLARLSDALATSDHASVVSINLFAVLLCACIVLGHLLLEENRWLNESITALI
 IGLCTGVVILMTTKGKSSHVLFSEDLFFIYLLPPIIFNAGFQVKKQFFRNFMFTITLF
 GAVGTMISFFTTISLAAIAIFSKMNIPTLDVSDFLAIGALFSATDSVCTLQVINQDETFP
 LYSLVFGEVVDATSVVLFNALQNFDPNQIDAIVILKFLGNFCYLFVSSTFLGVFSGL
 LSAYTIKKLYIGRHSTREVALMMLMAYLSYMLAELLDLGILTVFFCGIVMSHYTWHN

FIGURE 4 (continued)

13/18

VTESSRVTTKHAFATLSFIAETFLFLYVGM DALDIEKWK FASDSPGK SIGISSILLGLV
 LVGRAAFVFP LSLNLTKTELEKISWRQQIVIWAGLMRGAVSIALAYNKFTRS GHT
 QLEHNAIMITSTITVVLFS TMLFGILT KPLIRFLLPASSNGDPSEPSSPKSLHSP LLS
 MLGSDMEAPLP IVRPSSLRMLITKPTH TIHYWRKFDDALMRPMFGRGFVPYSPGSPT
 DPNVIVA

SEQ ID NO 19: *Triticum aestivum* NHX2

ATGGGGTACCAAGTGGTGGCGGCGCAGCTGGCGCGGCTGAGCGGCGCGCTGGGCACCTC
 GGACCACGCTCCGTGGTCTCCATCACCTCTTCGTGCGGCTGCTCTGCGCCTGCATCG
 TCCTCGGCCACCTGCTCGAGGAGAACCGCTGGCTCAACGAGTCCATCACCGCCCTCATC
 ATCGGGCTGTGCACCGGCGTGGTGATCCTGATGACCACCAAGGGAAGAGCTCGCACGT
 GCTCGTCTTCAGCGAGGACCTCTTCTTCATCTACCTCCGCTCCCATCATCTTCAACG
 CCGGTTTCCAGGTGAAGAAGAAGCAGTTCTTCCGGAATTCATGGCAATCACACTATTT
 GGTGCCGTGGGACGATGATGTCGTTTTTCACAATATCTCTTGCTGCCATTGGGATATT
 CAGCAGGATGAACATTGGGACACTGGATGTATCAGATTTCTTGCAATTGGAGCTATCT
 TTTCCGCGACAGATTCTGTCTGCACTCTACAGGTTCTCAATCAGGACGAGACGCCCTT
 TTGTACAGTCTAGTGTTCCGGGAAGGTGTGTGAACGATGCCACATCGGTGCTGCTTTT
 CAACGCGCTCCAGAACTTCGATCCTAACAGATCGACGCGATCGTCATTTCTTAAGTTCT
 TGGGGAACCTTCTGCTACTTATTCTGTGTCAAGCACCTTCCTTGGAGTGTTACTGGATTG
 CTTAGTGATACGTCATCAAGAAGTTATACATAGGAAGGCATTCTACTGACCGTGAGGT
 CGCACTTGTGATGCTCATGGCCCTACCTCTCATATATGCTAGCTGAGCTGCTAGATTTGA
 GTGGTATCCTCACTGTATTCTTCTGTGTATTGTGATGTCACATTACACCTGGCACAAAC
 GTGACAGAGAGCTCAAGAGTTACAACAAAGCATGCATTGCAACCTTGTCCTTCATCGC
 TGAGACTTTTCTCTTCTTATGTTGGGATGGATGCACTGGATATTGAGAAGTGGAAT
 TTGCTAGTGACAGCCCCCGCAAATCCATTGGAATAAGCTCAATTTTGCTCGGGTTGGTT
 CTGGTTGGAAGAGCTGCTTTCTGTTCCCGCTCTCGTTCTTATCCAACTTGACAAAGAA
 GACGGAGCTCGAAAAATAAGCTGGAGGCAGCAAATCGTAATATGGTGGGCTGGGCTGA
 TGAGAGGAGCTGTGTCGATCGCTCTTGCTTACAATAAGTTTACAAGATCTGGTTCACACA
 CAGCTGCAAGGCAACGCGATAATGATCACCAGCACCATCACTGTGCTTCTGTTAGCAC
 TATGTTGTTTGGCATTTTGACAAAGCCTCTGATCCGGTTCTACTGCGCGCGTGGAGCA
 ATGGCGCGCGCTCAGATCCCGCGTCAACGAAGTCCCTGCATCTCCTCTCCTCACAAAGC
 CAGCTAGGCTCGGACCTGGAGGCGCCTCTCCCATCGTGAGGCGCTCCAGCCTCCGGAT
 GCTCATCACCAAGCGACCCACACCATCCACTACTAGGCGCAAGTTTGACGACGCGC
 TGATGCGCCCGATGTTCCGAGGGCGCGGGTTGCTGCCCTACTCCCGAGGATCACCCACC
 GATCCGAACGTA CTGTTGAATGAACGTCGCGAAGAAGCAACGGAGAAGCCATTACAGC
 TTCAGGAGACACTCTGAACGTGAACAGGAAGGGAAGGAAGTGTACAGCTTCAGAAGAA
 CGCGAAGTCTCCGGTAATATTATAGCGTTTGGCAGACTCGGAAGGCTGAAGAAGGCGGC
 CCTCCGATGATGGTTGAGATGAACGGTTGGTTGCGGCACCGACAGGAAGATGAACCCTA
 GTAACGGTGATGCGAGTATCATCATCGCTTATCGGTTACGACAAAGCCTGTACAGTTT
 TGTATGTAGATTAAACAAGCCAATTGTATCCTATGAGATCTCGTTGGCAGGCAGGCGTC
 TGACCTCCTGCATCTGCGACGACCGCGGCTGGCCAAGGCCGGGTGCGGGCGGTGCTAC
 GCGCCGTTCCCGCCCGGGTGATGTTCCACAGCGAGGGCGGCTCAAGAGCTTCGAGCA
 CCCCATGAACCGCCTTAAGGCGCTCCCGAGGTTGGACAGCGAGGCGCTCATGTGCGGCG

FIGURE 4 (continued)

14/18

CCAACTTCAAGGTCGACGCCTTCACCAAGATCAACTCCATGCCCGCGTCGGCAGCGCC
ACCAACTGGGCGCGCGCTGGGACGACCGCGCCATCTGATCCTCGCGCGCGCGCGCTT
GCTCTCCGTCGTGGGCTCGTCGGGCTTGGGCTTATGCAATTTACTTGTTCCTTCC
TTGGCAATGTACATCTGATCTGATCTGATCTGAGCCGTGTGTGGGCGTGGCGCGCTG
GCACGTACCGCTGTTGCTGTACGATGGAGGAATAAGACTTTGCTTCCAGTCCAAAA
AAA

SEQ ID NO 20: *Triticum aestivum* NHX2 protein

MGYQVVAQLARLSGALGTSDHASVVSITLFWALLCACIVLGHLLLENRWLNESITALI
IGLCTGVVILMTTKGSSHLVLFSEDLFFIYLLPPIIFNAGFQVKKQFFRNFMAITLF
GAVGTMSFFFTISLAAIAIFSRMNIGTLDSDFLAIGAIFSATDSVCTLQVLNQDETFF
LYSLVFEGGVNDATSVVLFNALQNFDPNQIDAIVILKFLNFCYLFVSSFTLGVFTGL
LSAYVIKKLYIGRSTDRVALVMLMAYLSYMLAELLDLGILTVFFCGIVMSHYTWHN
VTESRRVTTKHAFATLSFIAETFLFLYVGM DALDIEKWKFPASDSPKSGISSILLGLV
LVGRAAFVFLSFLSNLTCKTELEKISWRQQIVWWAGLMRGAVSIALAYNKFTRSGHT
QLHGNAIMITSTITVVLFSITMLFGILT KPLIRFLP ASSNGAASDPASPKSLHSPILTS
QLGSDLEAPLPIVRPSSRLMITKPTHTTHYYWRKFDDALMRPMPGGRGFVPYSPGSP
DPNVLVE

SEQ ID NO 21: *Oryza sativa* NHX2

GGTGGCCATCTCGCTGAATCTGCAGGGTGAGCTGAGGAGGATCCACTGAGGTGGCGGC
GGTCGAGATGGGGCTGGATTGGGAGCTCTCGTTCTCAAAATCCGGCGGGCTGTTGGTGT
CGGACTACGACTCGATCGTCGCGATCAACATCTTCGTGGCGCTGCTGTGCAGCTGCATT
GTGATCGGGCACCTGCTGGAAGGGAAACGGTGGGTCAATGAATCCATCACCGCGCTTGT
CATGGGGCTGATCACTGGAGGTGTGATTCTGCTCGTCAGTGGTGGAAGAACTCGCACA
TTCTTGTTGTTCACTGAGGACCTCTTCTTCATTTATTTGCTTCCACCGATCATCTTTAAT
GCTGGGTTTCAAGTAAAGAAAAACAATTCTTCCGCAATTTATGACAATATTTTATT
TGGTGCTGTGGGGACATTGATATCCTTTGTGATAATCTCTCTAGGTGCCATGACATTGT
TCAAAAAAATTGATGTTGGTCCACTCCAGCTTGGGGACTATCTTGCAATTGGGGCTATC
TTCTCAGCAACAGATTCTGTTTGACCTTACAGGTGCTTAACCAAGACGAAACACCCCT
ACTCTATAGTCTGGTTTTTGGTGAAGGGTTGTCAATGATGCTACATCTGTGTGCTCT
TTAATGCAATTGAAGACATTGATATTGCTAATTTGATAGCCTTGTCTACTAGCGTTC
ATAGGAAATTTTCTTACCATTCTTACCAGTACCCTTCTTGAGTAGTTGCTGGGTT
GCTTAGTGCTATATTATTAAGAACTATGTTTGGCCAGACACTCAACTGACAGAGAAG
TTGCTATCATGATACTCATGGCGTACCTTTCATATATGCTGTGCTGCTGTAGATCTG
AGTGGCATTCTACTGTGTTCTTCTCTGGAATAGTAATGTACATTACACTTGGCATAA
TGTGACAGAAAGCTCTAGGATTACTACCAAGCACACTTTTGCTACTTTATCTTTTCATTG
CTGAAATTTTCTATTCTCTATGTTGGGATGGATGCACCTGGACATTGAAAAATGAAAA
TTAGCTAGCAGCAGTCTAAAAAACCAATTGCTTTAAGTGCAACTATATTGGGCTTGGT
TATGGTTGGAAGAGCAGCATTTGTATTCCCTTTGCTTTCTTATCCAATCTAAGTAAAA
AAGAGACAGCCCCAAGATCTCCTTCAAGCAGCAAGTAATCATATGGTGGGCAGGTCTC
ATGAGAGGAGCAGTATCAATAGCACTTGCTATCACAAGTTCACCGCATCTGGTCATAC

FIGURE 4 (continued)

15/18

TGAATTGCGAATCAATGCTATCATGATCACCAGCACAGTCATTGTTGTTCTGTTTCAGCA
 CAATGGTTTTTGGTTTTTTTACCAAGCCTCTCCTCAATCTCCTCATCCCAAGGCCT
 GACATAGCAGCTGATCTCTCAAGCCAGTCAATCATAGACCCACTTCTTGGAGCCTGCT
 GGGGTCGACTTCGATGTAGGCCAGCCCTCCCTCAGAACCACTTCAGCTTCTTCTCA
 CCATTTCAGACTCGCTCCGTTTCATCGCGTGTGGCGCAAGTTTGATGATAGATTATGCGC
 CCGATGTTCCGGGGCCGAGGCTTCGTTCTTTCGTGCTGTTTCGCCAGTGGAGCGGAG
 CATCCATGGATCTCAACTGGGCACTGTGACTGAGGCTGAACATAGCTGAGTTTGAGGTT
 CAGAAGGTGCAAGCA

SEQ ID NO 22: *Oryza sativa* NHX2 protein

MGLDLGALVLKSGGLLVSDYDSIVAINIFVALLCSCIVIGHILLEGNRWVNESITALVMG
 LITGGVILLVSGGKNSHILVPSDELFFIYLLPPIIFNAGFQVKKKQFFRNFMIIILFGA
 VGTLSISFVIIISLGAMTLFKKLDVGPLQLGDYLAIGAIFSATDSVCTLQVLNQDETPILLY
 SLVFGEGVNDATSVVLFNAIEDIDIANFDSLVLAFIGNFLYLFFSTLLGVVAGLLS
 AYIIKKLCFARHSTDREVAIMILMAYLSYMLSMMLDLDSGILTVFFSGIVMSHYTWHNVT
 ESSRTTKHTFATLSFIAEIFLFLYVGMALDIEKWKCLASSSPKPIALSATILGLVMV
 GRAAFVFPPLSFLSNLSKKEITRPKISFKQOVIIWAGLMRGAVSIALAYHKPTASGHTL
 RINAIMITSTVIVLFPSTMVFGFFTKPLNLLIPRPDIAADLSSQSIIDPLLGSLLGS
 DFDVGGQFSPQNNLQLLLTIQTRSVHRVWRKFDDRFMRPMPGGRGFVFPVGPSPVERSIH
 GSQLGTVTEAHS

SEQ ID NO 23: *Saccharomyces cerevisiae*

ATGCTATCCAAGGTATTGCTGAATATAGCTTTCAAGGTGCTGTTAACCACCGCCAAGAG
 AGCAGTTGATCCTGACGATGATGTAACCTTCTACCTTCCCGGATCTCCCGGTAGCG
 ATGACCCTATTGCAGGTGATCCTGATGTAGACTTAAACCCCTGTTACAGAAAGAAATGTTT
 TCTTCATGGGCATTGTTTATTATGTTGCTCCTATGATCTCTGCATTGTGGTCTAGTTA
 CTATTTAACTCAGAAACGAATTAGGGCAGTGCATGAAACTGTGCTTTCTATTTTATG
 GTATGTTTATGGCTTGATAATAAGGATGTCCCGGGGCATTATATTCAAGATACGGTT
 ACTTTTAAATCATCCTACTTTTAAATGTTCTATGCGCCAAATTATTTTAAATAGTGG
 GTACGAGTTGAATCAAGTGAACCTTTTCAATAATATGTTATCTATCTTAAATTTTCGCCA
 TACCGGGCACCTTCATATCTGCTGTGGTTATTGGAATCATATTGTATATCTGGACCTTT
 TTAGGACTAGAGAGTATTGACATTTCATTGCGAGATGCAATGTCTGTTGGTGCTACATT
 ATCTGCTACCGACCTGTACAAATCTTTCAATTTTCAATGCGGTATAAAGTGGATCCTA
 AGCTATATACCATCATTTTGGAGAATCACTGTAAATGATGCCATCTCTATTGTTATG
 TTTGAAACCTGTCAAAAATTTATGGTCAACCTGCAACATTTTCGTGGTTTTGAAGG
 GGCAGGCTCTTTTGTGACTTTCTCGTTTCGTTGTTGATAGGCGTTCTTAGGAA
 TTCTTGTTGCTCTCTGTGAAACACACTCACATAAGGCGCTATCCTCAAATTGAGAGT
 TGTTTGATCTTGTTGATTGCTTATGAATCCTATTTTCTCCAACGGTTGCCATATGTC
 CGGTATCGTCTCTGTTATTTTGGGAATTACTTTAAACATTACGCTATTATAACA
 TGTCAAGAAGATCACAGATCACCATTAAGTATATTTTCCAACATTGGCAAGATTATCA
 GAGAATTTTATCTTATCTATCTAGGTTTAGAACTTTTACTGAAGTAGAACTAGTCTA
 TAAGCCACTGCTAATTATTGTGGCAGCTATTTCTATATGTGTTGCTCGTTGGTGTGCTG

FIGURE 4 (continued)

16/18

TGTTCCCATTTGTCGCAATTTGTTAACTGGATATATAGAGTAAAGACAATCAGATCTATG
 AGCGGCATAACCGGAGAAAATATTTCTGTTCCCGATGAAATACCCCTACAATACCAAAT
 GATGACATTTTGGGCAGGTTTACGTGGTGTCTGTTGGTGTGCGCCTTGGCGTTGGGAATTC
 AAGGTGAGTATAAGTTCACTTTATTTGGCAACGGTCCTTGTGTTGTTGTTTAAACAGTT
 ATCATTTTGGGGGCACTACTGCAGGAATGTTAGAAGTTTAAATATTAAGACTGGTTG
 CATAAGTGAAGAAGATACATCTGATGACGAGTTTGATATAGAGGCTCCAAGGGCGATAA
 ATTTATTGAACGGTAGTTCTATTAGACAGATTGGGCCCATATTCTGACAACAATCTCT
 CCAGATATTTCAATTGACCAATTCGCGGTGAGCAGTAACAAGAATCTCCCAATAACAT
 ATCCACAACCTGGTGGTAATCTTTGGAGGCCCTTAATGAACTGAGAATACTAGCCCTA
 ACCCGGCAAGGTCTTCTATGGATAAGCGTAATTTGAGAGATAAACTGGGAACAATCTTT
 AATCCGACTCAATGGTTTCAAATTTTGATGAACAGGTATTGAAGCCAGTATCTT
 GGACAACGTTTCTCCATCCTTACAGATTGGCTACGCAATCACCTGCAGATTTCTCTT
 CCCAAAACCACTAG

SEQ ID NO 24: *Saccharomyces cerevisiae* protein

MLSKVLNLI AFKVLTTAKRAVDPDDDELLEPS PDLPGSDDPIAGDPDVLNPNVTEEMF
 SSWALFIMLLLLISALWSSYLLTQKRIRAVHETVLSIFYGMVIGLIIRMSFGHYIQDTV
 TFNSSYFFNVLLPPIILNSGYELNQVNFNMLSLIFAIPTGTFISAVVIGIILYIWT
 LGLESIDISFADAMSVGATLSATDPVTTLSIFNAYKVDPKLYTIIIFGESLINDAISIVM
 FETCQKFFHGQPATFSSVFEGAGLFLMTFSVSLIGVLIGLILVALLKHTHIRRYPOIES
 CLILLIAYESYFFSNGCHMSGIVSLLFCGITLKHAYYNNMSRRSQITIKYIFQLLARLS
 ENFIFIYLGLELFTVELVYKPLLIIVAAISICVARWCAVFPPLSQFVNWIYRVKTIRSM
 SGTITGENISVPDEIPYNYQMMTFWAGLRGAVGVVALALGIQGEYKFTLLATVVLVVVLTV
 IIFGGTTAGMLEVLNIKTGCISREEDTSDEFDIEAPRAINLLNGSSIQTDLGPYSDNNS
 PDISIDQFAVSSNKNLPNNISTTGGNTFGGLNETENTSPNPARSSMDKRNLRDKLGTIF
 NSDSQWFQNFDEQVLKPVFLDNVSPSLQDSATQSPADFPSSQNH

SEQ ID NO 25: *Magnaporthe grisea*

ATGACTTTTCGATATCGCCGGCAACCTCCTGGAGCTCACCAGGCGCGCTGCCGAGGAACC
 CGAACCTGGAGGAATGGCAGTTGGCCTTGCCCTGCGAGTGTGTTGCCGTGATGGACTCC
 AGGACCTCGTCAGCTTCGATTACCAATCTTCTTCAACCTCCTCCTTCCACCCATCATC
 CTCTCGTCCGGCTACGAGTTACATCAGGCCAACTTCTTCCGGCACATCGGAACAATTCT
 CACGTTTCGATTTGCTGGCAGCTTCTGTCTGCAGTAGTCATCGGTGTTATCTATGGC
 TTTACACTCGCGTACCCCTCGAGGGGCTCACCATGAACGGATCGATGCCATATCTGTT
 GCGCAACTTTGTCAGCTACCGATCCTGTCAACATCATAGCCATCTTCAACTCGTACAA
 GGTGGACCCGAAGCTGTATACCATCATCTTTGGAGAGGCCATCCTCAATGACGCTGTGG
 CCATTGTCTATCTCGAGTCGGCGCAAAAGTCCGCCAGGGGCTTGACCAAAGGCAGCGCT
 GCTGGCATCTCTACCTTCTTCTGGGGTTTCTGGATTTTCTTGAGGGACTTCTTGGCAG
 CTGTGTTTCATCGGGGCGCTTCTTGGCATCTCACCAGCGCTCATGTCTAAGTACACGTACC
 TCAGGAGGTTTCCCAAGCTGGAGAGCTGCTTGATTGTGCTTATGCTTACGCCAGGTAC
 TACTTTTCCAGGCCATACACATGTCTGGAATTGTGTCACTGTTGTTCTGCGGAATCAC
 ACTCAAACTATGCATCTTCAACATGTGCGGAAGAACTCAGCTTACGACCAAGTACA

FIGURE 4 (continued)

17/18

TGTTCCAGGTCTCGCACAACTGTCTGAGAACTTTATCTTTATTACCTGGGTGTTTCC
 CTCTTTACGGACAAGGATCTCCAGTTCAGCCCCCTCCTCATCTTGTCACTGTCTATGGC
 GGTGTGCGCAGCTCGCTGGGTGCGGTATTTCCCACTCTCGTGGGCCATCAACTGGTTCC
 ACAAGTACCGGGCAGAAAGACGTGGCATCAAGAACGTGCCCGAGGAGCTGCCGTACAAG
 TACCAAGGCATGCTGTTCTGGGCAGGGTTGCGTGGAGCGGTGCGTGTGGCCCTGGCCGC
 GTTGTGTACGGCCAAGGACCACCGTGCAATCAAGGCGACCGTTCTGTTGTGGTGGTGC
 TCACGTGTCTATATTTGGTGGCACTACGGTCAACGTGCTTGAAATCCTCGAGATCCGC
 ACGGGAGTGACGGATGAGATCGATTCTGACGATGAATTCGACATCGAGGCAGTTGGGGG
 CTACTACAAGCGATCGGGTAACGGAAATAGGTTATAGCCCGGCCGGCGCAATGGTGTG
 TGCCCTTGGACACACGTCCAGGTCCGAGACGTGACAGTAATGGCGCCGTCGGTGAAGA
 GACCGAGCGGCTGGAGCTCAGGACATAGATCTCCCTTGAGTGGCGCAAGGCCTGGCAG
 TCTCGTCCGTACAGGGTCAACACGCGAAGAAGCGGAAAGACTGGACCTCCTTGGCAACC
 CGGGCGGCTCGACAGACTCGGATGACTTTGGGAGCGACATTGACACGTGGACCTGCCG
 CCACCAGCCCCCTAGGAGACGATCCAGCCCAATGCCGCTACGGGCGACGAAGAGGCAGC
 TGGTTTGGCAGCGGGGGGAGCAGGACAGGTCGAACACAGAGACGGGTGGCTTGTCCG
 CCACGGCCGCGATCCGCCAGCTGTTTCCAGCACCGAGGACCAACAGCCCTGTTCCAGGCAG
 CTGACAGGAGACTACATCAAACCGAAGCTACTGCTCGATGGCGGTGCCGCCGTGGGAA
 CGGTGGTGGCGCTGGCGGATCGAGTTAG

SEQ ID NO 26: *Magnaporthe grisea* protein

MTFDIAGNLLLELTRAAEPEPGGMVGLALRVFAVDGLQDLVSFDYQIFFNLLLPPII
 LSSGYELHQANFRHIGTILTFAGTFLSAVVGIVILWLYTRVPLEGLTMNWIDAI
 SATLSATDPVTIIAIFNSYKVDPKLYTIIIFGEAILNDVAIVIFESAQKSARGLTGKSA
 AGISTFFWGFWIFLRDFGSLFIGALLGILTALMLKTYTLRRFPKLESCLIVLIAYATY
 YFSQAIHMSGIVSLLFCGITLKHAYFNMSSRRQTLLTKYMFQVLAQLSENFIFYLGV
 LFTDKDLQFQPLIIIVTVMVCAARWVAVPPLSWAINWPHKYRAERRGIKNVPEELPYK
 YQGMFLWAGLRGAVGVALAALLTAKDHRAFKATVLLVVVLTVIIFGGTTVNVLEILEIR
 TGVTEIDSDDEFDIEAVGGYYKRSNGIGYSPAGRNQVPLDTRPGRRRDSNGAVGGR
 DASGWSSGHRSPLSAARPGSLVRTGSTREEAERLDLLGNPGGSTDSDDFGSDIDTSDLP
 PPAPRRRSSPMPPTGDEEAAGLPAGGSRTSNTETGGLSATAAIRQLFSTEDPTALFRQ
 LDEDIKPKLLLDGGAGRGNGGAGGSS

SEQ ID NO 27: Prolamine promoter

CTTCTACATCGGCTTAGGTGTAGCAACACGACTTTATTATTATTATTATTATTATT
 ATTATTATTACAAAATATAAAATAGATCAGTCCCTCACCACAAGTAGAGCAAGTTGGTG
 AGTTATTGTAAAGTTCTACAAAGCTAATTTAAAAGTTATTGCATTAACTTATTTCATAT
 TACAAACAAGAGTGTCAATGGAACAATGAAAACCATATGACATACTATAATTTTGT
 TTTATTATTGAAATATATAATTCAAAGAGAATAAATCCACATAGCCGTAAAGTTCTACAT
 GTGGTGCATTACCAAAATATATATAGCTTACAAAACATGACAAGCTTAGTTTGAAAAAT
 TGCAATCCTTATCACATTGACACATAAAGTGAGTGATGAGTCATAATATTATTTCTTT
 GCTACCCATCATGTATATATGATAGCCACAAAGTTACTTTGATGATGATATCAAAGAAC
 ATTTTGTAGTGACCTAACAGAATATCCAAATAATATGACTCACTTAGATCATAATAGA

FIGURE 4 (continued)

18/18

GCATCAAGTAAAACTAACTCTAAAGCAACCGATGGGAAAGCATCTATAAATAGACAA
GCACAATGAAAAATCCTCATCATCCTTACCACAATTCAAATATTATAGTTGAAGCATAG
TAGTA

SEQ ID NO 28: Ubiquitin promoter without first intron

GATAATGAGCATTGCACTGTCTAAGTTATAAAAAATTACCACATATTTTTTTTGTCCACAC
TTGTTTTGAAGTGCAGTTTATCTATCTTTATACATATATTTAACTTTACTCTACGAATA
ATATAATCTATAGTACTACAATAATATCAGTGTTTTAGAGAATCATATAAATGAACAGT
TAGACATGGTCTAAAGGACAATTGAGTATTTTGACAACAGGACTCTACAGTTTATCTT
TTTAGTGTGCACTGTCTCTCTTTTGTGCAATAGCTTCACCTATATAAATACTTCA
TCCATTTTATTAGTACATCCATTAGGGTTTAGGGTTAATGGTTTTTATAGACTAATTT
TTTAGTACATCTATTTTATTCTATTTTAGCCTCTAAATTAAAGAAAACATAAATCTAT
TTTAGTTTTTTTATTATAAATTAGATATAAAATAGAATAAAATAAAGTGACTAAAAA
TTAAACAAATACCTTTAAGAAATTAAAAAACTAAGGAAACATTTTCTTGTTCGAG
TAGATAATGCCAGCCTGTTAAACGCCGTCGACGAGTCTAACGGACACCAACCAGCGAAC
CAGCAGCGTCGCGTCGGGCCAAGCGAAGCAGACGGCAGGCATCTCTGTGCTGCCTCT
GGACCCCTCTCGAGAGTTCCGCTCCACCGTTGGACTTGCTCCGCTGTGGCATCCAGAA
ATTGCGTGGCGGAGCGGCAGACGTGAGCCGGCAGGCAGGCAGGCCTCCTCCTCTCTCA
CGGCACGGCAGCTACGGGGGATTCCTTTCCACCGCTCCTTCGCTTTCCCTTCCTCGCC
CGCCGTAATAAATAGACACCCCTCCACACCTCTTTCCCAACCTCGTGTGTTTGGGA
GCGCACACACACCAACCAGATCTCCCCCAATCCACCGTCGGCACCTCCGCTTC

SEQ ID NO 29: prm3122 (sense, AttB1 site in *italic*)

*GGGGACAAGTTTGTACAAAAAAGCAGGCTTCA*CAATGGGGATGGAGGTGG

SEQ ID NO 30: prm3123 (reverse, complementary, AttB2 site
in *italic*)

*GGGGACCACTTTGTACAAAGAAAGCTGGGTGCACTGTTCA*TCTTCCTCC

FIGURE 4 (continued)